CIVIL ENGINEERING

Lassonde School of Engineering
Civil Engineering

LE / CIVL 4000 6.0 SECTION A
CIVIL CAPSTONE DESIGN
FALL 2017 / WINTER 2018

Last Modified Date: 08/17/2017

COURSE CALENDAR DESCRIPTION

A small group of students will work as a team to undertake a Civil Engineering industry-provided design project. The design solution will include the application of civil engineering knowledge and skills. The course builds on LE/CIVL 2000. Students apply at a professional level the knowledge and skills they have acquired from the Civil Engineering program and receive guidance and expert advice from guest speakers from civil engineering industry and academia on topics related to their design projects. Deliverables include progress reports, a comprehensive design report and a formal oral presentation to an audience comprising peers, instructors and industry professionals. The students are evaluated on their teamwork as well as on individual contributions. The evaluations include instructor evaluations as well as self and peer evaluations.

Prerequisites: LE/CIVL 2000 3.00; LE/ENG 2003 3.00; LE/ENG 3000 3.00. Corequisites: LE/CIVL 4110 3.00; LE/CIVL 4210 3.00

INSTRUCTOR(S)

<table>
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<th>Name</th>
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<td>Eldyasti, Ahmed</td>
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TOPICS AND CONCEPTS

This course expands on the basic aspects of Engineering Design introduced in LE/ENG 1102 Renaissance Engineer 2 and LE/CIVL 2000 Civil Engineering Design Project: Engineering Design Principles, focusing on open-ended design problems provided by industry, with the objective of integrating design and engineering analysis with effective communication skills. Lectures will introduce students to a variety of topics that may be delivered by both Lassonde instructors and guest speakers from industry, who may provide students with relevant case studies that highlight different stages of Engineering Design. Topics will focus on the following themes at professional level:

- Project Management (e.g. project planning, strategies for successful meetings, management techniques).
- Design Techniques and Methods (e.g. defining societal/customer needs, problem formulation, design procedures, product development)
- Design Evaluation and Implementation (e.g. designing evaluation matrices, implementing weighted objectives, decision justification)
- Communication in Design (e.g. formal and informal written and oral communication of design process, results, decision).
Students will also be exposed to additional information and skills for developing and maintaining a healthy climate for a successful teamwork, including:

- Team dynamics and management
- Individual responsibility and accountability in a group
- Techniques for receiving and providing constructive feedback
- Problem solving, management and organization as well leadership roles

The projects are open-ended design problems in Civil Engineering. Students will present their design through both written and oral communication to their peers, faculty and selected members of the engineering community. The design problems will likely be of multidisciplinary in nature spanning across the major sub-disciplines of Civil Engineering.

**LIST OF LEARNING OUTCOMES AND EXAMPLES OF**

By the end of the course, students should be able to:

1. Apply engineering design process to a multidisciplinary civil engineering project,
2. Produce a professional quality technical report on the design project,
3. Effectively communicate the final design in the form of a formal oral presentation,
4. Assess their own performance within a team and review strengths and weaknesses of other team members,
5. Apply knowledge in ensuring safety including public safety in relation to the design, and
6. Apply basic economic and project management principles in civil engineering design.

**GRADED ASSESSMENT**

**Grading Scheme**

**Term 1**
Proposal -10%
Term 1 Progress Report (Memorandum) - 5%
Term 1 Report - 15%
Term 1 Project Binder - 10%
**Term 1 Total - 40%**

**Term 2**
Term 2 Progress Report - 5%
Draft Design Report - 15%
Oral Presentation on Final Design - 15%
Design Report (Final) - 15%
Project Binder - 10%
**Term 2 Total - 60%**

Grand Sum - 100%

**ADDITIONAL INFORMATION**
Contact hours: 4 hours per week
- Lectures – 1 hour lecture/week
- Design sessions/tutorials – 3 hours/week

ACADEMIC INTEGRITY LINKS
- Senate Policy on Academic Honesty - http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/
  - Academic Integrity - http://lassonde.yorku.ca/academic-integrity

STUDENT LINKS
- Student Rights and Responsibilities - http://oscr.students.uit.yorku.ca/student-conduct
- Religious Observance - https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs
  - Counselling and Disability Services - http://cds.info.yorku.ca/

Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.

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